County of Loudoun

Department of Planning

MEMORANDUM

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LOUDOUN COUNTY
DEPARTMENT OF PLANNING

DATE: April 1, 2010

TO: Marchant Schneider, Project Manager
Land Use Review

FROM: Joe Gorney, AICP, LEED AP, Senior Planner
Community Planning

SUBJECT: SPEX 2009-0040, SPEX 2009-0041, SPMI 2010-0001, & CMPT 2010-0002, Potomac Interceptor Odor Abatement Site

EXECUTIVE SUMMARY

The District of Columbia Water and Sewer Authority proposes an odor abatement facility within an existing easement within Algonkian Park to rectify odor issues associated with the Potomac Interceptor sewer line and to preclude corrosive conditions within the sewer system. The project site is within a treed area and the Potomac River floodplain and would be accessed via an existing private gravel driveway. The site is approximately 1,150 feet from the nearest residence.

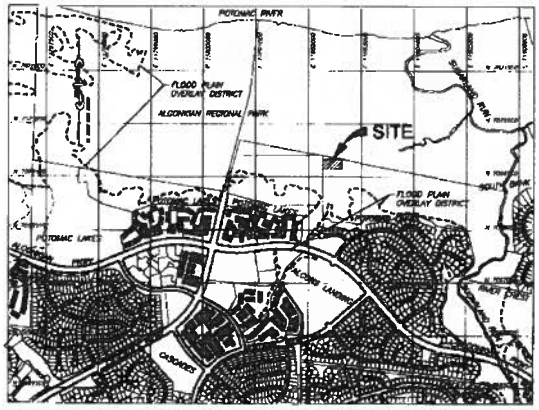
The odor abatement facility would rectify an existing environmental concern, would be constructed in conjunction with an existing utility line, and is in conformance with the wastewater policies of the Revised General Plan. In addition to the treatment of odors within the Potomac Interceptor, the facility would limit the formation of corrosive conditions, helping to maintain the satisfactory condition of the system, and protect the public health.

To be fully consistent with the Comprehensive Plan, staff recommends that the applicant provide commitments regarding stormwater management, wetlands, forest resources, screening, and building design.

BACKGROUND

The District of Columbia Water and Sewer Authority (DCWASA) requests a Special Exception and Commission Permit to allow a sanitary sewer odor abatement facility in the Planned Development - Housing (PD-H4) zoning district, a Special Exception to allow a structure required for the operation of a public utility to locate in the Floodplain Overlay District, and a Minor Special Exception to modify the required Type 4 landscape buffer.

The Odor Abatement Facility is proposed along the Potomac Interceptor sewage conveyance line at Site #46, Potomac Lakes Parcel H-5 (PIN 010-10-0295) to provide long-term control of odors associated with the sewage line. The facility would also limit the formation of corrosive conditions with the sewer system, thereby maintaining the integrity of the sewer pipes and protecting the public health. The area of the Special Exception covers approximately 11.5 acres of a larger 99.8 acre parcel. The proposal includes a 1,350 square-foot building and a driveway/loading area of approximately 3,200 square feet. The limits of disturbance are approximately 16,800 square feet. Access is provided via an existing private, gated, gravel driveway from Cascades Parkway/Fairway Drive, which is located to the west of the site.



Vicinity Map

The site is located within the Algonkian Regional Park, to the north of the Potomac Lakes residential development, and to the east of the Potomack Lakes Sportsplex. The area of the Special Exception is within the Potomac River floodplain and features river and stream corridor resources, forest resources, and possible archaeological features.

COMPLIANCE WITH THE COMPREHENSIVE PLAN

The subject site is governed under the policies outlined in the Revised General Plan. It is located within the Potomac Community of the Suburban Policy Area and is designated for Residential uses (*Revised General Plan, Chapter 6, Suburban Community Boundaries Map, and Chapter 7, Planned Land Use Map*).

Specifically, the wastewater policies of Chapter 2 (Planning Approach) of the Revised General Plan apply to the proposed development. The environmental features on the subject site were assessed applying the Green Infrastructure policies of Chapter 5 (The Green Infrastructure: Environmental, Natural, and Heritage Resources) of the Revised General Plan, including policies pertaining to river and stream corridor resources, forest resources, plant and wildlife habitats, and archaeological resources.

ANALYSIS

LAND USE

Wastewater Treatment

The community's infrastructure, including sanitation facilities, must complement the County's land use strategy (*Revised General Plan, Chapter 2, Infrastructure, text*). More specifically, water and wastewater treatment and conveyance facilities will be planned, designed, and maintained to be compatible with County development and

environmental goals while functioning at a high level of efficiency (*Revised General Plan, Chapter 2, General Water and Wastewater Policy 3*).

The odor abatement facility is designed to rectify odor issues associated with the existing Potomac Interceptor sewer line. The proposed facility is approximately 1,150 feet from the nearest residence. The facility of one of a number of facilities planned along the Potomac Interceptor throughout Northern Virginia and the only facility planned in Loudoun County.

Hazardous materials to be removed from the odorous air stream and adsorbed into activated carbon granules as part of the odor abatement process include hydrogen sulfide, sulfur dioxide, and small amounts of methane. After adsorption these materials will be periodically disposed of by either being dissolved in water and returned in solution back to the Potomac Interceptor or removed still adsorbed to the activated carbon granules when the activated carbon is replaced. Granular activated carbon is highly flammable and a fire suppression system would be installed in the facility. The facility would be assessed via an existing gravel driveway, located within a forested area, and built no larger than necessary for odor abatement.

The applicant has demonstrated that the proposed odor abatement facility would rectify an existing environmental concern, would be constructed in conjunction with an existing facility, and is in conformance with the general policies of the Revised General Plan. To be fully consistent with the Comprehensive Plan staff requests that the applicant provide commitments for the issues raised below.

GREEN INFRASTRUCTURE

The Green Infrastructure is a collection of natural, cultural, heritage, environmental, protected, passive, and active resources that are integrated into a related system. These resources include major rivers, stream corridors, floodplains and wetlands, reservoirs and impoundments, mineral resources, steep slopes, vegetated landscapes, wildlife habitats, scenic corridors, parks, greenways, trails, and recreational facilities (*Revised General Plan, Chapter 5, Green Infrastructure Policy 1*). The County uses integrated management strategies for the Green Infrastructure to ensure that all land use planning and development respect and preserve the holistic nature of the elements of the Green Infrastructure (*Revised General Plan, Chapter 5, Green Infrastructure Policy 2*). The Plan calls for all development within the Suburban Policy Area to incorporate designs that fully integrate elements of the Green Infrastructure (*Revised General Plan, Chapter 6, Land Use Pattern and Design Policy 2*).

County Geographic Information Systems (GIS) records indicate river and stream corridor resources, including floodplains and wetlands, forest resources, and habitat on or near the site.

River & Stream Corridor Resources

River and stream corridor resources, including streams, floodplains, and wetlands, are significant elements of the Green Infrastructure. The Comprehensive Plan permits a limited number of uses in the stream corridor, including passive and active recreation, road crossings, pervious paths and trails, utilities and utility rights-of-way, public lakes and ponds, public water supply reservoirs, and planting native vegetation (*Revised General Plan, Chapter 5, River and Stream Corridor Resources Policy 18*).

The Revised General Plan calls for the protection of surface water resources from contamination and pollution and preventing the degradation of water quality in the watersheds. Impervious surfaces, including parking lots and rooftops, are anticipated sources of runoff and pollutants, such as litter, road salts, oil, grease, and heavy metals, which impact water quality (*Revised General Plan, Chapter 5, Surface and Groundwater Resources, text*). Increased storm runoff volumes and velocities could scour adjacent drainageways, impact wetland resources, and impact adjacent properties.

Design standards and principles should preserve open space and natural resources, minimize the creation of new impervious areas, and minimize increases in post-development runoff peak rate, frequency, and volume (*Revised General Plan, Chapter 5, Surface Water Policy 16*). Additionally, the County supports the federal goal of no net loss to wetlands (*Revised General Plan, Chapter 5, River and Stream Corridor Resources Policy 23*).

To protect water resources and the integrity of neighboring properties, the Revised General Plan calls for low impact development (LID) techniques, which integrate hydrologically functional designs with methods for preventing pollution (*Revised General Plan, Chapter 5, Surface Water Policy 2*). LID approaches seek to control runoff discharge, volume, frequency, and quality in order to mimic predevelopment runoff conditions through a variety of small-scale site design techniques. LID techniques can help reduce sedimentation and erosion, trap and remove pollutants such as nitrogen, phosphorus, metals, and organic compounds, protect wildlife habitat, store flood waters, and maintain the overall water quality of nearby streams. These facilities should be located as close as possible to impervious areas and utilize the landscape and soils to naturally move, store, and filter run-off. The associated flow reductions and water quality improvements can then benefit the receiving streams. LID techniques include:

- Native landscaping enhanced through the routing of runoff through these areas;
- Rain gardens;
- Native-vegetated drainage swales for the movement and temporary storage of runoff;
- Vegetated filter strips that slow runoff speed, trap sediment and pollutants, and provide additional water absorption;
- The collection and use of rooftop runoff for irrigation; and
- Green roofs.

The proposed facility would be constructed within the Potomac River floodplain. As part of a wastewater utility, the odor abatement facility is one of the uses anticipated within river and stream corridors. The floor elevation of the building (206.5 feet Mean Sea Level (MSL)) would be placed above the 100-year flood elevation (205.0 feet MSL) and the design of the building will take into account flood-related stresses. The existing ground elevation is approximately 197.0 feet MSL.

The applicant anticipates that approximately ¼-acre of the 11.5-acre Special Exception area would be developed with impervious surfaces, such as buildings and driveways. Although the applicant anticipates that no pollutant removal is required, the applicant states that Low Impact Development (LID) measures would be used to achieve additional pollutant removal. LID measures may include rainbarrels with storm filters and level spreaders. Level spreaders are a stormwater management devices installed at ground level that spread and slow stormwater runoff. The sheet flow discharge from the level spreaders would be directed through a wooded area to facilitate the filtration and absorption of nutrients.

Additionally, the applicant notes that jurisdictional wetlands exist within the site and that any disturbance within the designated wetland areas would be permitted by the US Army Corps of Engineers. The wetlands are located on the opposite side of the gravel driveway from the proposed facility.

Staff recommends that the applicant commit to the LID measures to be employed. Additionally, staff recommends that the applicant avoid impacts to wetlands and specify the actions to be taken during construction to avoid any direct or indirect impacts to these resources, including soil compaction.

Forest Resources

County policies encourage the preservation of existing vegetation and wildlife habitat on developing properties (*Revised General Plan, Chapter 5, Forests, Trees, and Vegetation Policy 10*). Additionally, the County encourages the planting of indigenous vegetation (*Revised General Plan, Chapter 5, Plant and Wildlife Habitats Policy 5*).

The facilities would be constructed in an area of early successional forest and impact approximately ¼-acre of forest resources. In the Statement of Justification the applicant states that "the proposed improvements have been done in such a manner that existing vegetation and wildlife will be preserved to the extent practicable while addressing the operational requirements of the facility" (*Statement of Justification, 2/5/2010, p. 4*).

Staff recommends that the applicant specify the tree protection measures to be taken during construction to protect the surrounding vegetation from any direct physical damage or from indirect impacts, including soil compaction. Staff recommends that the applicant consider the replacement of the impacted forest resources within other portions of the Special Exception area, including the south

side of the gravel access driveway, using indigenous plants. The applicant should coordinate with the County Urban Forester regarding these measures.

Vegetation & Landscape Treatment
New central wastewater and water lines and facilities should be constructed in a manner that causes the least environmental risk and visual disruption. Disturbed areas (excluding permanent access easements to reach a facility) should be stabilized with native vegetation. New treatment facilities should be screened with trees, berms, and/or shrubs (*Revised General Plan, Chapter 2, General Water and Wastewater Policy 12*). Lands that are critical to the quality of key water supplies will be re-naturalized, if necessary, to restore filtration and erosion control functions (*Revised General Plan, Chapter 5, Surface Water Policy 1*).

The odor abatement facility would be constructed adjacent to an existing sewer line. Use of existing vegetation for the buffer is being requested as the odor abatement facility is located within a wooded area and as the applicant is trying to reduce the disturbance to the existing forest to the extent practicable. The applicant requests that the facility be constructed without a fence at the request of the NVRPA to minimize disturbance of the area and to minimize distraction from the aesthetic qualities of the facility, which has been designed to replicate the appearance of a stone barn.

The applicant has included a Planting Schedule that lists the various trees and shrubs to be planted around the facility and a Planting Detail that depicts the expected location of those plants. The applicant has depicted the general location of existing vegetation, disturbed areas, parking areas, and planned trees and shrubs. All the plants listed or depicted are indigenous. Staff notes that the number and type of species in the Planting Schedule do not match the Planting Detail.

Given that the proposed facility is surrounding by existing trees to the north, east, and west, and a gravel access driveway to the south, a fence and a fully planted buffer may be unnecessary. However, staff recommends that the applicant commit to the revegetation of disturbed areas surrounding the building following construction with indigenous vegetation.

Archaeological Resources
The County will require an archaeological resources survey as part of all development applications (*Revised General Plan, Chapter 5, Historic and Archaeological Resources Policy 11*).

The applicant submitted an Archaeological Identification for Site 46, Algonkian Regional Park as part of the application.

Staff evaluation of the Archaeological Identification is being sent under separate cover.

BUILDING DESIGN

Building design considerations include architectural cohesiveness. The Revised General Plan states that new wastewater facilities should be constructed in a manner that causes the least visual disruption (*Revised General Plan, Chapter 2, General Water and Wastewater Policy 12*). Considerations include building size, exterior cladding of the building, signs, and other features that may create visual impacts on the surrounding community.

The applicant has submitted illustratives depicting the four building elevations. The building has been designed to replicate the appearance of a 19th Century stone barn with wooden shutters and doors and a metal seam roof at the request of the property owner, the Northern Virginia Regional Park Authority. According to the building illustratives, the proposed building is approximately 34 feet tall, including the roof. No lighting is proposed for the facility.

Staff recommends that the applicant commit to the use of the depicted architectural treatments to ensure compatibility with the surrounding uses.

COMMISSION PERMIT

The County will determine the need for new public facilities and will identify suitable sites based on the Revised General Plan, appropriate area plans, land use, and growth policies (*Revised General Plan, Chapter 3, General Public Facilities Policy 2*).

In accordance with the Revised 1993 Zoning Ordinance, a Commission Permit is required when a public utility or public service facility is constructed to determine if the general location, character, and extent of the proposed use are in substantial accord with the Comprehensive Plan.

The applicant has demonstrated that the facility is needed to control odors associated with the Potomac Interceptor. The location was chosen based on a study of the entire Potomac Interceptor Sewer that determined the number and placement of odor abatement facilities across the entire system. The Loudoun County facility would be accessed via an existing gravel driveway, located within a forested area, and built no larger than necessary for odor abatement.

Staff finds that the general location, character, and extent of the proposed use is in substantial accord with the Comprehensive Plan and recommends approval of a Commission Permit for the proposed use.

RECOMMENDATION

The construction of an odor abatement facility associated with the Potomac Interceptor is in conformance with the general policies of the Revised General Plan. However, to

be fully consistent with the Comprehensive Plan, staff recommends that the applicant provide commitments regarding stormwater management, wetlands, forest resources, screening, and building design.

Staff is available to meet with the applicant to discuss these issues.

cc: Julie Pastor, AICP, Planning Director
Cynthia Keegan, AICP, Program Manager (via email)